

MADS-DVVA - Data Visualization and Visual Analytics

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| Allgemeine Informationen | |
|----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| Modulkürzel oder Nummer | MADS-DVVA |
| Eindeutige Bezeichnung | DataVisVisAn-01-MA-M |
| Modulverantwortlich(e) | Prof. Dr. Schwörer, Tillmann (tillmann.schworer@haw-kiel.de) |
| Lehrperson(en) | Prof. Dr. Schwörer, Tillmann (tillmann.schworer@haw-kiel.de) |
| Wird angeboten zum | Wintersemester 2026/27 |
| Moduldauer | 1 Fachsemester |
| Angebotsfrequenz | Regelmäßig |
| Angebotsturnus | In der Regel jedes Semester |
| Lehrsprache | Englisch |
| Empfohlen für internationale Studierende | Ja |
| Ist als Wahlmodul auch für andere Studiengänge freigegeben (ggf. Interdisziplinäres Modulangebot - IDL) | Nein |

| Studiengänge und Art des Moduls (gemäß Prüfungsordnung) |
|-------------------------------------------------------------------------------------|
| Studiengang: M.Sc. - DS - Data Science Modulart: Pflichtmodul Fachsemester: 1 |

| Kompetenzen / Lernergebnisse |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <i>Kompetenzbereiche: Wissen und Verstehen; Einsatz, Anwendung und Erzeugung von Wissen; Kommunikation und Kooperation; Wissenschaftliches Selbstverständnis/Professionalität.</i> |
| Students know - available visualization techniques and understand for which purpose they are most suitable, - tools and best practices to closely integrate visual analysis, documentation, and presentation, - programming frameworks for data visualization |
| Students are able to - use visualizations as a means to detect patterns in complex data, - design and develop expressive visualizations tailored to the specific purpose and recipient using programming languages |
| Students are able to - concisely present their approach and results in technical and functional terms - work successfully in teams on joint projects, leveraging and integrating the skills of all team members. |
| Students are able to - reflect on the strengths and weaknesses of visualization techniques, - give and receive constructive critique and advice and they adhere to principles for scientific communication. |

| Angaben zum Inhalt | |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Lehrinhalte | <p>Foundations of Data Visualization</p> <ul style="list-style-type: none"> - Perception and Visualization Design - Interactive Dashboards - Visual storytelling <p>Python for Data Visualization</p> <ul style="list-style-type: none"> - Plotly - Matplotlib - Geopandas - Streamlit <p>Applications</p> <ul style="list-style-type: none"> - Comparing categories - Relationships - Time series - Geographic data - Interactive visualization |
| Literatur | <ul style="list-style-type: none"> - Lecture Slides - Cole Nussbaumer Knaflic, <i>Storytelling with Data: A Data Visualization Guide for Business Professionals</i>, 2015 - Jonathan Schwabish, <i>Better Data Visualizations: A Guide for Scholars, Researchers, and Wonks</i>, 2021 - Claus O. Wilke, <i>Fundamentals of Data Visualization: A Primer on Making Informative and Compelling Figures</i>. O'Reilly, first edition, 2019, online available: https://serialmentor.com/dataviz. |

| Lehrformen der Lehrveranstaltungen | |
|-------------------------------------------|------------|
| Lehrform | SWS |
| Lehrvortrag + Übung | 4 |

| Arbeitsaufwand | |
|------------------------|----------------------|
| Anzahl der SWS | 4 SWS |
| Leistungspunkte | 5,00 Leistungspunkte |
| Präsenzzeit | 48 Stunden |
| Selbststudium | 102 Stunden |

| Modulprüfungsleistung | |
|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Voraussetzung für die Teilnahme an der Prüfung gemäß PO | Keine |
| MADS-DVVA - Portfolioprüfung | <p>Prüfungsform: Portfolioprüfung</p> <p>Gewichtung: 100%</p> <p>wird angerechnet gem. § 11 Absatz 2 PVO: Nein</p> <p>Benotet: Ja</p> |

| Sonstiges | |
|-----------------------------------|----------------------------|
| Empfohlene Voraussetzungen | Basic knowledge of Python. |